

Claims

- 1 1. A method to enhance integrated circuit device heat dissipation comprising the
2 steps of:
3 providing an integrated circuit device having a surface;
4 providing a flexible strip of a thermal conductive material; and
5 adhering the strip to the surface of the integrated circuit device.
- 1 2. The method of claim 1 wherein the strip is corrugated.
- 1 3. The method of claim 2 wherein the strip is metal and is copper or aluminum.
- 1 4. The method of claim 3 wherein the thickness of the strip is 0.5 mil to 10 mil.
- 1 5. The method of claim 4 wherein the corrugated strip has corrugations in the
2 shape of a repeating series of triangles.
- 1 6. The method of claim 4 wherein the corrugations in the strip are in the shape of
2 a repeating series of convex and concave portions comprising sidewall portions, top
3 portions and bottom portions.
- 1 7. The method of claim 4 wherein the corrugations in the strip are in the shape of
2 a repeating series of convex portions comprising angled sidewalls and a top portion
3 and a triangular concave portion.
- 1 8. The method of claim 4 wherein the corrugations in the strip are in the shape of
2 a series of vertical fins.

1 9. The method of claim 4 wherein the corrugating in the strip are in the shape of
2 a repeating series of loops.

1 10. The method of claim 1 wherein the flexible corrugated strips have an adhesive
2 thereon to adhere the corrugated strip to the integrated circuit device.

1 11. The method of claim 2 wherein the flexible corrugated strip has a flat flexible
2 strip of a thermal conductive material bonded to one side thereto forming a single-
3 faced flexible corrugated strip article.

1 12. The method of claim 11 wherein the flat flexible strip article has an adhesive
2 thereon on the side to be adhered to an integrated circuit device.

1 13. The method of claim 11 wherein the single-faced flexible corrugated strip
2 article has a flat flexible strip of thermal conductive material bonded to the other side
3 of the flexible corrugated strip forming a double-faced flexible corrugated strip.

1 14. The method of claim 13 wherein at least one of the flat flexible strips has an
2 adhesive on the side to be adhered to the integrated circuit device.

1 15. The method of claim 14 wherein each side of the flat flexible strips has an
2 adhesive thereon for adhering to an integrated circuit device.

1 16. A method to enhance integrated circuit device heat dissipation comprising the
2 steps of:

- 3 providing an integrated circuit device having a surface;
- 4 providing a strip of flexible flat thermal conductive material;
- 5 forming corrugations in the flexible thermal conductive material; and

6 adhering the corrugated flexible thermal conductive material to the surface of an
7 integrated circuit device.

1 17. The method of claim 16 wherein an adhesive is applied to the strip surface
2 before corrugation.

1 18. The method of claim 16 wherein an adhesive is applied to a strip surface after
2 corrugation.

1 19. The method of claim 16 wherein a flexible strip thermal conductive material is
2 bonded to the corrugated flexible thermal conductive material forming a single-faced
3 corrugated strip article.

1 20. The method of claim 19 wherein an adhesive is applied to the side of a single-
2 faced corrugated strip to be adhered to an integrated circuit device.

1 21. The method of claim 19 wherein a second flexible strip thermal conductive
2 material is bonded to the other side of the corrugated flexible thermal conductive
3 material forming a double-faced corrugated strip article.

1 22. The method of claim 21 wherein an adhesive is applied to the side of the
2 double-faced corrugated strip to be adhered to an integrated circuit device.

1 23. The method of claim 22 wherein an adhesive is applied to each side of the
2 double-faced corrugated tape article.

1 24. An article of manufacture for dissipating heat for integrated circuit devices
2 comprising a flexible strip of thermal conductive material having an adhesive on a

3 portion thereof which will contact with and adhere the strip to an integrated circuit
4 device.

1 25. The article of claim 24 wherein the flexible strip is corrugated.

1 26. The article of claim 25 wherein the flexible corrugated strip has a flat flexible
2 strip of thermal conductive material bonded to the strip forming a single-faced flexible
3 corrugated strip article.

1 27. The article of claim 26 wherein the flat strip of thermal conductive material
2 has an adhesive on the side to be adhered to an integrated circuit device.

1 28. The article of claim 26 wherein a second flat flexible strip of thermal
2 conductive material is bonded to the other side of the corrugated tape to form a
3 double-faced flexible corrugated strip.

1 29. The article of claim 28 wherein each side of the flat flexible strip of thermal
2 conductive material has an adhesive thereon.

1 30. The article of claim 24 which has been surface treated to increase the
2 emmissivity of the article.

1 31. The article of claim 25 which has been surface treated to increase the
2 emmissivity of the article.

1 32. An electronic component assembly comprising a housing containing an
2 electronic component which is cooled by adhering the flexible article of claim 24 to
3 the electronic component and the housing.

1 33. The electronic component assembly of claim 32 wherein the housing is metal
2 or has a thin metal coating thereon.

1 34. The electronic component assembly of claim 32 wherein the flexible article
2 used is the article of claim 25.

FIG. 20